

**AMENDMENTS TO THE CLAIMS**

The following listing of claims replaces all prior listings of claims presented in the application.

**Claim 1 (currently amended):** A vacuum control system comprising:

an air introduction device inserted in a vacuum exhaust path provided by a vacuum exhaust pipe that interconnects the vacuum vessel to the exhaust vacuum pump, the air introduction device being inserted in the vacuum exhaust path at a position on the vacuum exhaust pipe between the vacuum vessel and the exhaust vacuum pump, path connecting the vacuum vessel to the exhaust vacuum pump for continuously introducing a controlled amount of air into the vacuum exhaust pipe ~~[[path]]~~, wherein

the controller is operable to hold the degree of vacuum in the vacuum vessel constant.

**Claim 2 (canceled).**

**Claim 3 (currently amended):** A constant circulation resistance tube which is formed by coaxially inserting a resistance adjusting rod into a hollow capillary and which can control a

flow rate of gas circulating between an inner circumference of the hollow capillary and an outer circumference of the resistance adjusting rod by adjusting a circulation resistance of the gas, wherein the circulation resistance can be adjusted by varying an insertion length of the resistance adjusting rod inserted into the hollow capillary, and wherein and can be fixed by fitting a separation preventing short tube is fitted to an outer circumference of the hollow capillary at an opening end, the separation preventing short tube being fitted to prevent movement of the adjusting rod and thereby fix the circulation resistance.

**Claim 4 (currently amended):** The vacuum control system according to claim 1, wherein the air introduction device comprises a constant circulation resistance tube which is formed by coaxially inserting a resistance adjusting rod into a hollow capillary and which can control a flow rate of gas circulating between an inner circumference of the hollow capillary and an outer circumference of the resistance adjusting rod by adjusting a circulation resistance of the gas, wherein the circulation resistance can be adjusted by varying an insertion length of the resistance adjusting rod inserted into the hollow capillary, and wherein ~~and can be fixed by fitting a separation preventing short tube is fitted~~ to an outer circumference of the hollow capillary at an opening end, the separation preventing short tube being fitted to prevent movement of the adjusting rod and thereby fix the circulation resistance.

**Claim 5 (currently amended):** A vacuum degassing apparatus for removing dissolved gas from liquid isolated with a gas permeation diaphragm, comprising:

a vacuum vessel by reducing the inside pressure of a vacuum vessel including a [[the]]  
gas permeation diaphragm;

[[with]] an exhaust vacuum pump; and

a, the vacuum degassing apparatus employing the vacuum control system according to  
claim 1, the vacuum control system including:

a controller for monitoring the inside pressure of the vacuum vessel using a pressure  
sensor, and controlling a voltage applied to a DC brushless motor on the basis of an output  
signal resulting from measurement of the inside pressure of the vacuum vessel by the  
pressure sensor to control the displacement of the exhaust vacuum pump; and

an air introduction device inserted in a vacuum exhaust path provided by a vacuum  
exhaust pipe that interconnects the vacuum vessel to the exhaust vacuum pump, the air  
introduction device being inserted in the vacuum exhaust path at a position on the vacuum  
exhaust pipe between the vacuum vessel and the exhaust vacuum pump, for continuously  
introducing a controlled amount of air into the vacuum exhaust pipe, wherein

gas dissolved in the liquid is isolated with the gas permeation diaphragm by reducing the  
inside pressure of the vacuum vessel by operating the exhaust vacuum pump, and by operating  
the controller to hold the degree of vacuum in the vacuum vessel constant.

**Claim 6 (canceled).**

**Claim 7 (currently amended):** The vacuum degassing apparatus according to claim 5,  
wherein the air introduction device comprises a constant circulation resistance tube which is

formed by coaxially inserting a resistance adjusting rod into a hollow capillary and which can control a flow rate of gas circulating between an inner circumference of the hollow capillary and an outer circumference of the resistance adjusting rod by adjusting a circulation resistance of the gas, wherein the circulation resistance can be adjusted by varying an insertion length of the resistance adjusting rod inserted into the hollow capillary, and wherein and can be fixed by fitting a separation preventing short tube is fitted to an outer circumference of the hollow capillary at an opening end, the separation preventing short tube being fitted to prevent movement of the adjusting rod and thereby fix the circulation resistance.

**Claim 8 (new):** The constant circulation resistance tube of claim 3, wherein the constant circulation resistance tube is configured such that the circulating gas flows along substantially the entire length of the resistance adjusting rod within the hollow capillary.

**Claim 9 (new):** The constant circulation resistance tube of claim 3, wherein a waste inflow preventing filter is fitted to an opening of the separation preventing short tube.